CONSOLIDATED AIRCRAFT CORPORATION
2050 ELMWOOD AVENUE, BUFFALO, N.Y.

SPECIFICATIONS FOR CONSOLIDATED COMMODORE FLYING BOAT

The Consolidated Commodore is a twin-engined flying boat, powered with two Pratt and Whitney Series B Hornet Engines.

WEIGHTS

Weight empty	9850 Lbs.
Useful load	7750 "
Gross weight	17600 "

The useful load shall consist of fuel, oil, radio, crew, passengers and mail or baggage.

FINISH AND PROTECTIVE COVERING

All steel parts shall be cadium plated and shall receive one coat of Berry Bros. primer and two coats of Berry finish paint.

All aluminum alloy parts shall be carefully cleaned with International Chemical Cleaner, washed with plenty of clear water, given one coat of Berry Bros. primer and two finishing coats.

Outside hull shall be finished according to Berry Bros. Specifications using Lionoil primer.

Inside hull shall have a coat of Berry primer and one coat of aluminized varnish.

All control cables shall be boiled in linseed oil and coated with a mixture of tallow and white lead.

WINGS

The wings shall be according to consolidated specifications with the additonal requirements.

(a) Fittings to handle the ship with a sling must be installed.

(b) The wing shall be wired for navigation lights as specified by the Departement of Commerce. The wing shall be wired for night landing lights of the Pyle National type. Suitable connections for operating these lights shall be provided in the wing and extending into the cockpit. Landing lights and navigation lights will be installed. Night landing lights shall be furnished by purchaser.

HULL AND STRUCTURE

STRUCTURE

The structure of the hull, floats, wings and empennage shall consist of extruded dural shapes and dural sheet. The wing hull bracing shall consist of dural tubular members with the exception of the horizontal float struts which shall be heat treated chrome molybdenum. steel.

The engine mounts should be constructed of chrome molybdemum steel in the form of a welded assembly. Tapered pins with bolts on the small end should be used to connect nacells structure to the wing. (Commodore No.6 and thereafter).

Tie down fittings should be installed in front upper out board struts.

PASSENGER ARRANGEMENT

Double seats shall be provided to accomodate 16 passengers. These shall be located in two comparments forward of the step and arragned in pairs facing each other on both sides of the aisle. The compartment aft of the step shall have one single seat and one day bed on both sides of the aisle.

All three passenger compartments shall be provided with sockets to anchor removable tables. These sockets shall also provide support for ash trays, four of which shall be located in each of the three compartments. Two tables (folding type) shall be provided for each airplane.

*The double passenger seats shall be so designed that they are readily removable. The side of each double seat adjacent to the aisle shall be hinged so that the space underneath the seat is available for the stowage of hand luggage.

A buffet will be installed with four (4) thermos bottles of one gallon capacity each, equipped with a locking device. This installation will be of serviceable construction and will be disigned by the Consolidated and approved by NYRBA. This design must be submitted so as not to delay delivery on boat #5.

A suitable lavatory shall be provided for a pilot and auxiliary pilot.

MAIL & BAGGAGE

The forward mail or baggage compartment shall have a capacity of 75 cubic feet. The two after compartments shall have a combined capacity of 125 cubic feet. It is desirable to so distribute the load between the forward and after compartments that they each carry approximately the same weight. The total weight of mail which can be carried in the above compartments shall be 4,000 pounds.

WINDOWS

All windows shall be made water tight.

Canvas partitions, which are readily removable, shall be provided for each mail or baggage compartment.

*WATERTIGHT DOORS

Two watertight doors which can be quickly adjusted to any bulkhead opening shall be provided for each airplane. These doors need not fill the entire opening between compartments but will render same substantially watertight to a level approximately 20 inches above the aisle. They shall be so constructed that not more than 30 seconds is required for the placement of same.

HATCHES

All hatches will be so designed or equipped to prevent creeping during flight. The rear mail hatches opening action will be revised so that door movement will be to the rear. Front of hatch opening will be provided with beading to prevent water from getting in when taking off or landing.

*This applies to Commodore #5 and succeeding ships.

FLOORING

All flooring will be made quickly detachable or be provided with suitable manholes at correct locations so they can be removed at every opportunity for inspection and to be flushed out with fresh water and ventilated.

UPHOLSTERING

Upholstering will be of a serviceable type, preferably of a leather texture that will stand general wear and tear, such as being subject to emergency loads of mail and express which may be loaded in the passenger compartments.

ANCHOR GEAR

The following anchor gear shall be provided:

1 -100 lb. anchore.
150 Ft. of 5/16 extra flexible bronze anchor line. This line shall be fastened to an anchor winch which is geared down sufficiently to permit hoisting the anchor therewith.
Padding will be put in bottom of anchor compartment to prevent anchor wearing through bottom skin of hull.

Mooring pennant to be whipped with linen, then marlin and painted with Bitumastic.

The mooring pendant shall be attached to the hull at the keel under bulkhead #1 and extend to the bow where it is attached to the snubbing post when the airplane is in flight. When riding at anchor, the anchor line shall be attached to the mooring pendant and a suitable fitting provided on the end of the mooring pendant to permit of easy attachment of same to the anchor line.

HULL

Wood Strip to protect keel from striking ramp. - Commodore #7 and thereafter.
Steel plate at keel of first step.

Handles on all hatches and walkways to be made of steel.

Suitable drain plugs will be installed on bottom of boat so as to drain water out without using bilge pump. Plugs shall be screwed from the inside also wing nut type design with chain attached.(Commodore #7 and thereafter.)

All clam shells on hull shall be made to prevent water from shipping.

A forward hatch to the rear of #1 bulkhead shall be installed. -Commodore #10 and thereafter.

Mooring ring to be provided to tie up from rear.

AIRPLANE CONTROLS

The pilot's cockpit shall be rearranged in accordance with Consolidated Drawing No. 16A003. This change will apply to Commodore #10 and all thereafter. Half of the cost of this change shall be paid by the purchaser.

(Continue)

The pilot's cockpit shall be provided with a map case made of aluminum or some suitable material 3" wide 10" long x 8" deep.

Rudder controls shall be provided for both positions and include an adjustement which permits lengthening or shortening of the distances between the pilot's seat and the rudder pedals.

The pilot's seats shall be adjustable on the ground for both tilt and height. They shall be provided with Kapok bottom and back cushions which also serve as life preservers.

A reel trouble lamp with a 50" cord and spare bulb holder for four bulbs shall be mounted in cockpit in most accessible place.

A locking device must be installed in order to lock controls while at anchor.

ENGINE CONTROLS

(a) Engine controls will be of the positive type using Arens controls for all turns.

(b) Where the rod in Arens control is connected; this will be accomplished by using two rivets being installed at a 90 degree position.

(c) Reinforce bulkheads at points where engine controls are fastened. This is necessary in order to make controls positive and effective.

(d) The control levers for the manually controlled hot air intake will be located on bulkhead #3 and will be marked to designate hot and cold position.

(e) The electric inertia starter control will be from the pilot's cockpit and of the solenoid type.

(f) The two switches shall be connected mechanically so that one movement can out both switches.

POWER PLANT

The power plant shall consist of 2 Pratt and Whitney Series B. Hornets rated 575 HP at 1950 revs.

The propellers shall be of the three-bladed, metal type, approximately 9'6" in diameter.

The exhaust system shall consist of a manifold conforming to the design laid down by the NYRBA Line and each maifold shall have a hot air stove and control box there for in accordance with the above. The hot air control shall extend into the hull.

The exhaust outlet shall be on the outboard side of the nacelle and suitably louvred to provide some silencing effect.

FUEL SYSTEM

The main gasoline tanks, carried in the center section, shall have a capacity of 650 gallons and shall be provided with fuel quantity gauges. The fuel system controls shall be located in the pilot's cockpit.

A priming system shall be provided for each engine and the primer itself located on each nacelle.

The fuel supply shall be so arranged that it is possible to feed either engine from either fuel tank. The control in the pilot's cockpit shall be marked Left, Right and Off for both engines. A by-pass valve shall be installed in each line at the fuel pump to permit the carburetor to receive a fuel supply even though the engine driver pump is out of commission.

LUBRICATION SYSTEM

The oil tanks shall have a capacity of 25 gallons each and shall be located in the center section above the engine with the lower surface of the tank exposed to the slipstream. The tanks shall be provided with suitable baffles which will force the oil to pass over the cooling fins before returning to the engine. The oil tanks shall have an expansion of foaming space of 4 gallons which cannot be inadvertently filled.

Suitable oil radiators shall be provided on each engine aft of the nose cowl. The nose cowling itself shall be so arranged that it is possible to open or close same, the control therefor extending into the hull on the forward face of bulkhead number three.

It is proposed to test the carburetion, fuel system and lubricating system on Commodore No. 4 at Langley Field. Any changes found necessary as a result of these tests will be included in succeeding ships.

ELECTRICAL SYSTEM

The port engine shall carry a 50-ampere generator. An 80-ampere hour Willard battery shall be installed in the radio compartment and suitable connections and wiring located in the hull to provide current for cabin lights, navigation lights, instrument board lights, etc.

All of the electrical wiring shall consist of shielded Belden wire and a two-way system shall be used throughout.

A voltage regulator shall be provided in the radio compartment.

Provision shall be made for mounting landing lights in the landing edge of the wing. The purchaser will provide the lights and the builder provide the bracket, switches and wiring necessary for same. Commodore #7 and therafter.

Brackets shall be provided in the pilot's cockpit for a Very pistol (flare type).

RADIO

The NYRBA Line receiving and transmitting set shall be installed in the radio compartment.

INSTRUMENT BOARD

The following instruments shall be provided:

1 Pioneer compass
1 Pioneer magnetic compass type 518.
2 Pioneer Tachometers type - 347. curising speed at 1650 RPMs. The nummericals 1200, 1500, 1600 and 1800 to be luminous with an extra heavy line at 1650.
1 Air speed type 354 (Pioneer) cruising at 100 range 2.50 having 90 and 100 luminated. Have the stall position marked with a heavy luminous line.
1 Pioneer Altimeter type 355. Cruising at 1500 with 1000, 1500 and 2000 marked with a heavy luminous line Range 0-10-20 with the zero at the bottom.
1 Clock (Pioneer) type 543.
1 Rate of climb indicator (Pioneer) type 374.
1 Turn Indicator (Pioneer).
2 Pioneer gasoline pressure gauges type 505.
2 Pioneer Oil pressure gauges type #505.
2 Pioneer Oil temperature gauges type #506. (Fah. Scale)
2 Rheostats; (one for compass light and one for instrument panel)
1 Iceless head for airspeed (Pioneer type 357-930) (To be mounted on right outboard strut.)
1 Thermo-couple gauges furnished by Pratt & Whitney Co.
1 Bank Ball Indicator - Diaber large type.
1 Pioneer #536 Inclinometer.

Note:- Turn and Bank Venturi must be mounted on exhaust ring.

The grouping of instruments shall be in accordance with the arrangement specified by the NYRBA Line.

In addition to the instruments provided in the pilot's compartment, the following instruments shall be mounted in the forward passenger compartment:-

1 Air speed indicator.
1 Altimeter.
1 Clock.

Any extra cost entailed by the specified installation as compared with the standard installation, installed in the first four Commodores, shall be borne by the purchaser.

NIGHT FLYING EQUIPMENT

Provision shall be made for the installation and control of two Wiley parachute flares. Controls for same shall be located in the pilot's cockpit and the mechanism therefor shall be in accordance with instructions given by the NYRBA Line.

Provision shall be made for the installation of the Very pistol and holders provided for the Very pistol ammunition. This shall be located in the pilot's cockpit.

CONSOLIDATED AIRCRAFT CORP.

Chief Engineer.

NEW YORK RIO & BUENOS AIRES LINE INC.

Chief Engineer.

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